

**Phase Equilibria of the Ternary System
Potassium Chloride(S) + Water + 1,4-Dioxane**

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Ionic criticality is still a topic under discussion. Systems bearing long-range interactions are predicted to display classical behavior, but the experimental verification in pure coulombic systems, *i.e.* salts, is hampered by their high critical parameters. Instead, ionic systems dissolved in solvents have been studied as a reachable example, because the range of the interaction is always reduced by the effect of the solvent. Results in “coulombic” systems are contradictory but apparently favor non-classical behavior, with a dependence of the crossover temperature on the degree of coulombicity that, so far, can not be explained by theory. Moreover, some new experiments reveal the possibility of a more complex behavior in systems with ions dissolved in mixed (aqueous-organic) solvents, and that complexity has been related to the way these systems crossover from 3D-Ising to classical behavior.

In this paper we present new results of the study of the coexistence curve of an ionic ternary system. The measurements have been carried out with an excess of the solid phase (salt) to reduce the degrees of freedom and to make the path isomorphic with a binary system. The chosen systems have been previously studied by our group; the results indicated a singular crossover. In this work, the refractive index of both coexistence phases have been measured in a more extended temperature range. The shape of the coexistence curve is analyzed in terms of the choice of the order parameter.